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CONSCIOUSNESS AND REALITY

II. CONSCIOUSNESS AND ITS IMPLICATIONS

IF consciousness makes no causal difference to our energetic processes, if the complexity and associative organization, as well as the nature of the individual processes, such as sensations and feelings, depend upon the physiological development and structure, what difference can consciousness make? In the first place, we have seen that this is really a new problem. What has been dealt with in the past, from Protagoras, Augustine, and Descartes down, has been rather the difference between one set of processes, the conative processes, especially as involved in knowledge, and the processes which seem more external to the conscious ego. But if you take away from the side of consciousness all that is energetic, is it not an abstraction? Yes, it is an abstraction in the sense that space is an abstraction, but like space it must be treated as a fact of its own kind. We have become acquainted with other realities, which, while they are not energy and therefore can make no causal difference to energetic centers, yet do make a definable difference. We must rid ourselves of the prejudice that energetic or causal difference is the only difference which facts within reality can make to each other. There are differences which do not involve quantitative equivalence, but which are equally real. Space has no causal relation to the energies in space, and yet it makes a decided difference to these energies that they must interact in space. Their actions do vary in a certain statable way with the distance. Time I have identified elsewhere with the chance element of the universe. It makes the difference of fluency or change at all. To what degree and of what kind the fluency shall be, depends upon the structural character of reality. Hence in trying to describe the constancies or anticipations, based upon structure, even in reducing the flow of process in general to a conventional statement in terms of some one process, we may come to overlook the presupposition which makes process at all possible. The space character and the time character

each makes only one difference and throws upon the energetic structure the responsibility for the diversity of facts and changes.

So with consciousness: it makes only one difference to reality. Under certain energetic conditions, it makes the difference of *awareness*. You might say that it is physiological processes which make consciousness apparent, rather than the opposite. For nature must first perfect her arrangements before consciousness can make any apparent difference. And this apparent difference *is* the difference of awareness. What the awareness means, what character and value it has, depend upon the physiological processes. The energetic processes color consciousness, not consciousness the processes. Consciousness itself is colorless. A certain kind of energetic differentiation and a certain degree of energetic intensity become sensations of color or tone, etc., when aware of themselves; certain constructive or destructive changes become pleasure or pain. A certain kind of associative or cumulative structure becomes imaginative perspective, etc. The usefulness of such consciousness does not account for its existence, any more than the usefulness of space could account for its existence; but we can see how consciousness, being real, can figure as a survival condition and how a structure, making it meaningful, should be advantageous. The structures favor consciousness and in turn consciousness favors the structures.

Adaptation is not a matter of consciousness, as complicated adaptation does go on, both in human and infra-human life, without consciousness. But, with consciousness, physiological adaptation becomes purpose. Consciousness makes the difference between mere habit and instinct on the one hand, and memory and apperception on the other. It "is the light which lighteth every man that cometh into the world," but whether it is color or tone, emotion or thinking, pleasure or pain, depends not upon it, but upon the physiological conditions. As space is the precondition of distance and time of change, so consciousness is the precondition of awareness.

This awareness gives meaning and value to process under certain conditions. It is the difference between waking and sleeping structure. Perhaps an illustration or two will help. Without consciousness we could have the ether waves and the retinal changes and the complex cortical changes with complex adjustments, as in somnambulism, but there would be lacking the awareness which makes the situation *mean* light. So with sound and the other senses. So with the complex structural rearrangements which we call ideal construction, from revery to productive imagination and reasoning. Without consciousness, again, certain destructive organic changes might be going on, but they could, perhaps, only be corrected by the extinction of the particular individual and the building up of race instincts,

which is a costly and clumsy method at best. With consciousness an infinitely greater degree of individual adjustment becomes possible because of the awareness of the changes. The cumulative changes, made possible by a nervous system, become cumulative meaning. Awareness converts cumulative habit into perspective, physiological structures become pictures, and energetic interactions become significant relations. Thus past sensations and thinking, now physiological facts, become available for present emergencies, making it possible for prospective conative tendency to anticipate the future in a definite way, and thus enabling us to act at a distance in space and in time, instead of being dependent upon the present stimulus. Consciousness makes the difference to the stream of instinctive tendencies, that it can see its own flow, becomes aware of its own direction; and, as it does so, can control its separate impulses accordingly. It is not a link in the chain of causality, interacting with the events, physical or mental, but by its presence the construction of physical and mental becomes possible. The whole flow of change is transformed from mechanical causality to teleological causality. It is more like a medium, if you could think of a non-material and non-energetic medium, in which the events travel, than like a cause. It is not an epiphenomenon in the sense that it is a by-product of physical changes. Rather, it is a fact over and beyond the physical changes, which, under certain conditions, makes them more than physical. It makes the trend of instinctive tendency an ego.

Consciousness is like Aristotle's form of the body, in so far as it is inert as to the carrying on of bodily activity. It does not figure as a cause in the process. It does not make the engine go. Nor is it the potential energy actualized, as Aristotle supposed, since it is not statable as energy at all. It is a new fact added. It makes a difference, however, both as to the value and the control of processes. It makes possible prevision instead of mere cumulative habit, as well as illumines immediate value. Meaningful activity, in other words, requires two attributes or independent variables to describe it—energy and consciousness. It is a mistake to suppose that our ideals are mere corruscations or halos, by-plays to the going on of energy. They are energies, tendencies, aware of their direction and with a complex structural machinery in the way of association and habit at their disposal. That the organism is relighted, even as a candle in the night, can be easily understood, if we attend to the physical conditions on the one hand, and consciousness on the other.

The pathological phenomena fall as easily under the account of structure and awareness as the normal. Such phenomena as lapses of memory, alternating selves, multiple selves, etc., can easily be

met on this theory as due to physiological disorganization, not to disorganization of consciousness.

While consciousness as awareness is the precondition of all value and meaning, it can not decide as between values and meanings; it can not, as consciousness, legislate as between higher and lower values or pick the permanent from the transient. They are alike conscious; and, therefore, their different claims must be decided on the ground of organization, not on the ground of awareness. It makes the realization of tendency valuable, both immediately and in perspective, past and future; but it has nothing to say as to what tendencies shall prevail; which are valid or invalid values. Since objects are pleasing and beautiful in relation to our tendencies, and since our whole universe of tendencies may be low or abnormal, and yet be consistent within itself, consistent art or poetry or life, but low, we need another dimension besides energetic tendency and consciousness to decide what values or ideals shall prevail, which is the seeming and which is the real direction, if the universe is to have ultimate significance. It may be the wrong meaning, the wrong scale of values, the wrong pleasures and pains, a low universe of appreciation. If so, they must be eliminated and new universes of value be made to prevail. We must, therefore, assume besides energy and consciousness a formal attribute. The universe must be so constituted as to have such an objective form as to condition survival of individual streams of tendency, as well as social conventions, in order that new and higher universes may prevail in the long run. This attribute I have called elsewhere the attribute of ought or direction. This attribute must be as real as the energy aspect, the survival of the transformations of which it determines. Form and matter, to use Aristotelian terms, are ultimate aspects of the universe. But the form is not energy nor does it grow out of energy, but guarantees worth and validity to the process. To use a figure of speech, which is always dangerous, the formal aspect is the non-stuff warp of history, but the woof, the content, is furnished by the dynamic process. This warp is selective merely and can not produce its own material; and, in the infinity of energetic transformations, there is ample room for originality. Consciousness, then, as awareness, does not explain any particular value or meaning, nor does it determine the validity of values and meanings. It is a general precondition without which there could not be value at all.

We must say a word about the distribution of consciousness or its place in the cosmos as a whole. The distribution of consciousness so far as psychology is concerned, is a comparatively simple matter. It is a question of evidence; and we can get observational evidence of consciousness only when we find associative memory. This

already presupposes complex organic conditions. Whether memory can be present below the grade where we find a nervous system is a matter of evidence too and should not be settled *a priori*.

Even within the range of experience, however, we find many degrees. These degrees depend upon the organization of the meaning, which in turn depends upon the organization of the energetic processes, consciousness being present and undivided in all the stages equally. The question arises: Can there be awareness below the level of associative memory and meaning? We can at least find, in the course of experience, transition links toward such a state. We are sometimes aware of having been dimly conscious, as in going to sleep or waking, without being able to recall any ideas. This dimmer awareness here is continuous with ideational awareness and so comes to mean something as a background. The epileptic and the somnambulist respond to stimuli as though they had sensory consciousness, yet they furnish no evidence in the way of memory. The first conscious states of the infant must be such a dim awareness without meaning or "knowledge about." The dog, and still more the pigeon and the frog, after their hemispheres have been removed, though the evidence shows that there is no reference to past experience and therefore no meaning, still seem to react on various sense stimuli as though they had sensations—awareness without knowledge about. Where such awareness stops it would be impossible to say, and, for purposes of continuity, we may find it convenient to assume it clear down. Such awareness in the nature of things must be problematic, a mere *X* as far as knowledge is concerned, virtually split off from practical purposes. It is consistent with the fact, which we have tried to bring out above, that the *meaning* of the awareness, what sort of meaning and whether it means anything at all, is due to physiological structure.

This is very different from supposing that there are *feelings* outside of consciousness. That is mere nonsense. The question is whether consciousness as an ontological presupposition exists below even the dimmest or most confused processes of experience as we know it. There is no easy line psychologically; and logically it is simpler to assume the presupposition of consciousness than to derive it from non-conscious processes. It is easier, for epistemological purposes, to suppose that consciousness is a constant, rather than that it butts in; that it shines upon the just and the unjust, the simple and the complex, and in all kinds of weather, and that the difference in its effectiveness is due, not to it, but to the energetic conditions in the universe. For meaning structures differ from non-meaning structures not only in consciousness, but in organization. And so meaning structures differ from other meaning structures.

It may be universal, as time and space are universal, though we can only know it or have evidence of it where it makes a difference. We do not know it as split off, any more than we know anything else which is isolated. The question what consciousness is, if there is nothing but consciousness, is as sensible as the question what difference space makes if there is nothing but space. Attributes of reality are "not divided by a hatchet." It is not necessary to regard them as more split off in nature than we find them. Consciousness does seem to be split off in our own personal history, so far as making any difference is concerned, under certain organic conditions, as in dreamless sleep. It may be the same in connection with the simpler processes of nature. At any rate, to suppose consciousness existent, even when the conditions for its effectiveness are wanting, waiting, as it were, for the conditions to appear, or being made effective through the conditions, steers clear of the question of origin, and so greatly simplifies our metaphysical problem. Its effectiveness, we have seen, consists merely in contributing awareness. I can see only two ways of accounting for the presence of consciousness. It must either be a constant—as I have tried to show above—or it must be created outright, when we have evidence of it. Materialism amounts to the latter view. Moreover, this miracle would have to occur not only once and for all, but would have to be repeated every time and everywhere that consciousness is known to appear. Such a heaping up of miracles is hardly consistent with the modern scientific spirit.

The chief difficulty, as regards the presence of consciousness, comes from regarding consciousness as private or individual. If we regard consciousness as one and undivided, one character, the same everywhere, as space is the same, we shall avoid the main stumbling-block. We do not suppose that there must be as many real spaces as there are bodies, but real space has only one character, binding upon all alike so far as they are individual energies. It makes the difference of distance. So with consciousness. It does not differ from moment to moment or from one conscious being to another. If there is one conscious being in the universe, therefore, consciousness is as real as though there were billions, since consciousness is not a matter of quantity. And, if we find it difficult to think of consciousness as split off, we must remember it only seems split off from the individual point of view. In the whole it is really present. In the total universe, moreover, even if we find it difficult to imagine awareness without meaning, we can imagine some individual as possessing the structure for meaning awareness at any one time, even on the theory of chances. And, if this does not satisfy us in the changes of cosmic weather, we can have recourse to the guardian of Israel who "shall neither slumber nor sleep." The constancy of

energetic conditions for such a being we can now conceive as possible. As the simplest organic being, the unicellular organism, has an indefinite life, so we may imagine the highest or perfectly organized being as having the conditions for permanent life and consciousness in himself. It is we half-men that struggle. Such a being we shall have reason, no doubt, to assume, on ethical and religious grounds. If so, it will greatly aid our imagination, even if it does not increase the coerciveness of our logic. The need for a permanent consciousness might even count as one of the arguments for such a being, if unconvinced of the possibility of such permanency in any other way. Better such an assumption than the heaping up of meaningless miracles.

And why should we assume that consciousness is subjective? Other people's consciousness is not subjective to me, surely. I must acknowledge it as objective fact. Nor is there any ground for speaking of mine as subjective. Whether facts are subjective or not must be determined on other grounds than their being conscious. My being conscious of facts does not *prove* them subjective. My fellow man, music, color, etc., do not become subjective because I am conscious of them. In that case all facts would become subjective. The test of subjectivity or objectivity is whether they can be shared by several observers. Those are subjective processes which can be facts for one observer only. Those are objective which can be shared by several observers. Thus pain is subjective, in so far as I can not put another observer in a position to have the same process; while color processes must be objective, because another observer can share them as much as he can share any object. I may for certain purposes, mechanical purposes for example, ignore the color properties and select the geometrical properties, but that is another story, and has nothing to do with objective reality. The survival value of treating such properties as color and sound perceptions as objective would of itself be a strong argument for their objective significance.

The matter of subjectivity after all is largely a matter of degree. The closer we come to similarity of conditions, both of situation and individual structure, the nearer we come to a sharing not only of logical meanings, but of feelings and emotions. We come to have common sympathies. It is customary to speak of images as private, as contrasted with perceptions, and yet, as Le Bon and others have pointed out, images, especially visual images, furnish the most effective social means of persuasion and common action. They furnish the bond of the mob. If imagery were as private as the psychologists try to tell us, poetry would be well-nigh impossible.

Psychology as an introspective science, moreover, has no mon-

opoly of consciousness as such, any more than the physical sciences. What it studies is the laws and tendencies of conative processes, processes in part, or part of the time, conscious, *i. e.*, issuing into consciousness under certain conditions or presupposed by the conscious moment, as, for example, mental constitution.

This theory furnishes a decided advantage from the point of view of accounting for perception and knowledge. It destroys the privacy of consciousness, which has always been the bulwark of the skeptic; and it reinstates the world of energetic continuities, which has proved so fruitful a conception in science. This theory recognizes privacy, but it is a relative and explicable privacy, the privacy of tendency, of individual variation, conditioning race and imitative relations. If this is a drawback to communication, it is the raw material of progress. Moreover, it bears close relations to the race life all the while. It is a deviation merely from the common race stock, the continuity with which must make its originality significant. It is not a charmed circle. This conception of consciousness does not indeed solve the problem of knowledge. But, inasmuch as for this theory consciousness becomes merely a universal postulate, so far as the knowing function is concerned, therefore consciousness no longer complicates the problem, which now becomes an energetic problem. This problem is a twofold one. It must explain on the one hand how one energy can know another, whether differing in complexity or in kind, and on the other hand how our energetic purposes can know realities which are not energy, including consciousness itself. This problem has been dealt with elsewhere.[1]

This conception of consciousness greatly simplifies the problem of energy. It destroys the old conceptual cleavage between mind and body, or physical energy on the one hand and psychological processes on the other, by making consciousness a fact independent of energy. Nature knows no cleavage of energetic interactions. Why should we, by our concepts, put asunder what nature has joined together? The scientific theorist may now go ahead and simplify as he pleases, irrespective of consciousness. All we ask is that his conceptual model shall meet the energetic facts.

Is consciousness diaphanous? If this means that consciousness makes no difference, that processes are the same when they are conscious as when they are not conscious, that we are the same asleep as awake, then the question is absurd. But if the statement that consciousness is diaphanous merely means to emphasize that consciousness does not make or alter the energies of things; that there are no properties belonging to consciousness or constituted by con-

[1] See especially the author's article "The New Realism," in this JOURNAL, Vol. IV., p. 533; also "The Ultimate Attributes of Reality," *idem.*, p. 281.

sciousness; that the only difference it makes is awareness, which is not a causal relation, but is made possible by the organization of the energies of the body, making apparent the dimension of consciousness—if this is what is meant, it agrees with this theory. On the other hand, while consciousness does not make properties or values, it is a general precondition of their existence and there is no sense in speaking of such properties or values without consciousness.

If the conditions are such that consciousness can make no difference, does the universe vanish? Why should it? I do not vanish as a set of energies when I am asleep, not even when no one takes account of me. I have no *evidence* of consciousness—and evidence would mean memory and so awareness of the meaning type—during seven hours of last night, and no one perceived me, and yet I can go on with my plans of yesterday. So nature could have rhythmic pulses. Yet in its waking moments it would know it was real in its sleep and could furnish evidence in the way of changes which must be interpolated between the waking moments, and which do not happen when they are taken account of, but must be taken account of because they have happened. Of course, if the whole world were asleep, the sleep of Endymion would have no *meaning*, though real nevertheless if conditioning his waking up.

Every theory of reality must meet certain practical problems. And the question probably has suggested itself before now: What becomes of immortality on this theory? To this I will answer that the problem of immortality is the same on this as on any other theory. It can be neither proved nor disproved by theories. To say that everything is experience, irrespective of evidence, does not help the problem of immortality one whit. The facts of transmutation and the demand for individual continuity would still remain. As individual immortality means, not the simplicity of the soul nor the immortality of mere consciousness, but the carrying over, perhaps, of memories, or at least of tendencies, the problem becomes an energetic one. Individual immortality would depend upon the continuity of energetic conditions, not upon consciousness. It would be difficult to show that we constantly possess awareness during the sleeping and waking of this life even. Moreover, energetic continuity need not mean the gross continuity of the body. Race continuity involves only one form of energy, and a very small portion at that. So it may be with individual continuity including tendency, perhaps memory. If we can carry tendency over, tendency to think and feel and act, to enjoy the beauty and feel the sympathy with our world, we ought to be satisfied. This is the net result of it all. This view, moreover, would fit in with the church doctrine of the resurrection of the body, so far as energetic continuity is con-

cerned. It would not include the clothes or shoes or Gabriel's trumpet. But these, after all, are not an essential part of the conception. The life of a disembodied consciousness would be a pretty ghost-like affair. The world of energy must furnish the principle of individuation.

Since all that is necessary to bring back tendencies and memories is the presence of certain energetic conditions, with the light of consciousness thrown on them, the problem of immortality becomes at least simplified. And that there may be a constancy of conditions, even though having a finite beginning, may be shown by the relations within the electromagnetic field and the Brownian movement. These give us at least an inkling of energetic immortality. The fact that we have not been able to trace such energetic continuity of personality yet, is no argument. We were slow in tracing biological continuity experimentally. We have only within comparatively recent times found out something of the character of electricity and radium, and we have just been startled by the Brownian movement. The energy underlying personal continuity may be much subtler than these, and the favorable occasion for taking account of it, in its new state, may be much more difficult to find. Perhaps the spontaneous trance, as in the case of Mrs. Piper, may furnish such an opportunity. This remains to be established. At any rate, we have no right to assume that a certain gross energetic condition to which we are accustomed, is the only condition under which consciousness can appear. We have discovered a multiplicity of conditions under which electricity can appear. To be sure, these are only analogies, but I have shown at least that this view is not hostile to the conception of permanent personality. What really is the place of man and God in the universe must be established by the evidence of human experience and not by *a priori* reasoning. And they must have a place in the universe if human experience in its progressive evolution continues to require them. The realities of the ego, of God and immortality, remain what they are, on any theory. If the evidence proves that they must be, then they can be.

Conclusion.—This view of consciousness is self-consistent; it is economic in that it assumes consciousness as a constant and thus avoids the problem of origin; it is also economic in avoiding the duplication of structure involved in separating physiological and conscious processes. It meets all the requirements of biological evolution, and of normal and abnormal psychology. It accounts for the intermittent character of awareness. It meets the practical demands as well as any other theory. It does not prove them, for this must be done by evidence, but it makes them possible.

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CONSCIOUSNESS AND CONSERVATION

IN the course of an examination of various idealistic systems certain difficulties have suggested themselves. One of these, which may be of interest, involves the problem of conservation. The idea of conservation has become so familiar from our commerce with the so-called external world that the full significance of the fact that we do not demand it in our dealings with consciousness seldom strikes home. Is psychology here completely at fault, or has this principle no sway in the psychical realm? Glancing at the development of psychology since its alliance with physiology, one is inclined to say that a deeper reason than the one usually assigned motivated their union. Ideas, so far as we can discover by introspection, have no permanence, do not continue to exist when they pass out of consciousness. "We may still speak of ideas being stored in the mind and being associated together just as we may still say of a man that he carries the image of his beloved in his heart, but the two expressions have the same sort of validity only. They are picturesque survivals from the age of ignorance."[1] Both structural and functional psychology, as a consequence, rely on the brain for continuity. But if this is so, is not reality continually changing? It may still be that the old maxim holds that "nothing comes from nothing," but it can no longer be true that "nothing is destroyed." Each experience of mine is unique and is as evanescent as a passing shadow.

The reasons for the affirmations of things which exist whether we experience them or no, and of the parallel doctrines of the conservation of matter and of energy, need not concern us. Suffice it to point out that idealism recognizes ultimately only the reality of *conscious experience.* If so, must not idealism deny the conservation of reality?

For personal idealism the conclusion is especially interesting, since appeal can not be made to the mysteries of an unknowable absolute whose timelessness precludes all question of change. If reality is composed of finite experiencers and there is no death, reality must increase continually, or at least *may* increase. For either all began at once, and this is nothing other than the assertion that the universe arose spontaneously and the denial of *ex nihilo nihil fit,* or they did not arise together, and this implies that reality is increasing. That all individuals came into existence together, all laws of heredity, Mendelian and Galtonian, deny, unless a most peculiar and static architectonic is permitted, contrary to all evolutionary postulates. If, however, immortality be negated as the present

[1] MacDougal, "Physiological Psychology," p. 119.

tendency inclines, might not all die and reality cease in the twinkling of an eye? No more than Hume could be certain of the rising of the sun to-morrow, could idealism be assured of the continued existence of the universe. But if it be rejoined that, though experiencers may die, experience is always with us, is this not an appeal to a mind-stuff which rearranges itself, and have we any empirical grounds for such a position? As I have indicated, does not psychology deny a resurrection of past experiences as such, frowning upon the myth of a hades where they await disconsolately a return to the sunlit upper world?

Before drawing my moral, I wish to justify the thesis that the mind-body relation is metaphysical, and not merely methodological, by an analysis of an idealist's position. "Now that we have found that at least a part of that order, namely, the bodies of our fellow men, are not mere complexes in our own experience, but have a further existence as themselves experiencing subjects and are so far *'independent'* of their actual presentation in our own experience, we can no longer conclude from the dependence of the physical order for its sensible properties upon presentation to ourselves that it has no further existence of its own."[2] If the physical world is, as Mr. Taylor asserts, *more than* its being perceived, the *body upon the individual's demise* must also be more than its perception in other consciousnesses. Hence a duality is forced to the front; for if immortality is granted, the body is other than the immortal part, since it disintegrates; and the problem is raised for us, How were the individual and the reality represented to us by the body related during life? And if immortality is not granted, a like problem asserts itself, since the body remains in this case also and was, therefore, *more* than the individual's conscious experiences. In short, immortality is dualistic and renders meaningless the complex neuroses which now accompany consciousness.

This relative independence of the organism has direct connection with the problem of conservation, and this was my reason for introducing it. In contrast to the lack of conservation of consciousness is the conservation, not of the organization of the body necessarily, but of its so-called "additive" properties. Elsewhere I have called attention to the importance of organization as supplying the place in modern science of the qualitative. It is like the qualitative and like consciousness in that it is not ultimately conserved, *e. g.*, in organisms at death. To those unacquainted with physical chemistry the term "additive," used above, may require explanation. "In the first class we have those properties which are pos-

[2] Taylor, "Elements of Metaphysics," p. 207.

sessed by the atoms unchanged, no matter in what physical or chemical state these atoms may exist. Such properties are called additive, and the best instance of an additive property is found in weight (or mass). Each atom retains its weight unaltered whether it exists in the free state or whether it is combined with other atoms. When atoms combine the weight of the compound is the sum of the weights of the component atoms.''[3] In modern energetics this principle holds without the accompaniment of atomism.

My query is this, May not the quantitative be related to the qualitative and to consciousness and organization as the invariant is to the variant in mathematics, so that we may have conservation of the quantitative and non-conservation of the qualitative? Naturally this involves a reinterpretation of conservation as applied to reality. But is not this reinterpretation shadowed forth in the most general definition of reality, ''to be is to be active''? If this were so, the quantitative identity of cause and effect could still remain an ideal not conflicting with the doctrine of *grades of causal relation* depending upon organization, which biology is demanding. Physics has been more mechanical than chemistry because dealing with more general and external relations; it has also been more *a priori* and less empirical. Recent investigations, however, are destroying the barriers and the evolution of the elements and, therewith, the fact of organization is being acknowledged. That there must be grades of causal relation depending on the degree of organization of the interacting terms has not yet been fully recognized although biology, physiology, and chemistry have a suspicion of it. The reaction of an organism as a whole to a stimulus as indicated by Jennings brings out my meaning. In biology, for example, fertility and infertility are seen to be due to surface tension, which varies with the species. Mendelian characters, also, present the effect of evolutionary organization, and natural selection itself can be interpreted as a process of development of grades of causal relation. In fact, this is what adaptation means. The doctrine of specific nerve energies and the differentiation of sense-organs and cerebral centers are also best understood by the application of this conception. Scientists and philosophers alike built up their theory of nature on the least complex things, and, lost in the antithesis of mechanism and teleology, did not realize that grades of causal relation due to organization mediate these extremes. ''Investigations in physical chemistry are well suited,'' says Pauli,[4] ''to show how all biological methods are of the same value in that they leave no

[3] Walker, "Introduction to Physical Chemistry."

[4] "Physical Chemistry in the Service of Medicine."

room for strictly mechanistic or vitalistic tendencies." And the death of mechanism makes possible a solution of the mind-brain problem.

Since my purpose is to suggest rather than to defend, I conclude this discussion of conservation with a protest against the reification of the primary qualities. Their use in descriptions of causation is merely symbolic, and not explanatory. Accordingly, ontological or real causation has never yet been understood, and there is, therefore, no good reason to look upon consciousness as ineffective and alien. As for energy, Hume's classic analysis must never be forgotten. It seems to me that only the realism which passes through idealism can hold its ground. We are then left, not with a dualism, but with a monism whose tentative utterance in regard to the mind-brain relation is of the nature of a functional identity in which organization and differentiation are the structural phases, while consciousness is the *distinct variant*. The understanding of this requires the adoption of the psychical attitude towards another's body, the making it a thing-in-itself.[5] There may, thus, be degrees of variancy corresponding to the plasticity of the individual.

Some of the logical inferences from this conclusion may be indicated. First, whereas idealism has emphasized the temporal relation between cause and effect and, in the interest of conservation, stressed quantitative identity, realism must place emphasis on spatial relationships and the organization of the interacting terms. The idealist lays weight upon temporal continuity of process because time, not space, is his important category; the realist recognizes that the world-process is stereometrical with complex differences in its nodes, the most instructive example being the relation between two men. Second, this position mediates between materialism—or shall we say energism?—and panpsychism. It can not admit panpsychism because, as brought out above, consciousness is a variant and seems to have meaning only in an organism's stress relations to its environment. On the other hand, energism must be interpreted in the light of evolution and due justice done to the qualitative and the presence of consciousness. Third, as regards personal experiencing, this position is pluralistic; I can not *be* you, though my experience is a "microcosm" with a focus symbolizing *you:* as regards reality, it is monistic and obtains this monism through the body. Fourth, as to the existence of any higher consciousness, this position is inclined to be positivistic and naturalistic. There are no reasons to give leverage to such a belief.

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[5] *Cf. Psychological Review*, September, 1907.

THE QUESTION IN THE LEARNING PROCESS

FROM the standpoint of universal life, learning is the process of adjustment of the individual to his environment. Says Ernst Mach[1]: "The end of the every-day ideational life is the thinking completion and perfection of a partially observed phenomenon." Scientific thinking, on the other hand, he says, must adjust thoughts to each other, and is satisfied only when it has allayed all intellectual discomfort. Psychologically, adjustment presupposes two experiences with a hiatus between them. The one is the older mass of experiences, the individual, and the other is the new, the environment. This hiatus or gap produces a state of tension, stronger or weaker according to the degree of mental complexity, which causes the old experiences to assume the form of expectation, or questioning toward the new. It is the indication that the gap has been recognized, and the ability to recognize and close the gap and complete the experience is the truest test of the fitness to survive. This tendency to complete an experience we call curiosity in animals and children, the thirst for knowledge in thinking men and women.

Our proposition, then, for the learning process of the human mind is: Learning is the completing of experiences, and this completion is more easily and thoroughly accomplished when there is an awareness of the hiatus leading consciousness to take on the interrogative mode of predication.

From our previous description of adjustment we have the two factors, individual and environment, the known and the unknown,—concepts very old indeed, but it is concerning the boundary, the intervening space between the two, that we wish to speak. Every idea tends to mental or physical action, and it is when the idea finds itself checked that consciousness designates it as new and that the gap appears between it and the old consciousness which marks the incompleteness of the experience. Physiologically, there is probably a blocking of the path between the sensory and ideational centers or between these and motor centers. Improper reaction to stimuli is the essence of ignorance and error, and it means the failure or destruction of the individual. The lower forms of life have but a limited number of reactions for all stimuli, hence they perish by the million. Man with an appropriate reaction for every sort of stimuli comes off victorious in an encounter with a thousand dangers. "Experience is the best teacher," says the old saw, which means that the human mind has the power of recalling former similar experiences in the face of a new experience, and can forecast the

[1] "Kenntnis und Irrthum," p. 2.

future from the past. It is this holding back of the reaction to the new stimuli until the old experience passes judgment on the appropriate reaction that constitutes the incompleteness of an experience. This sense of incompleteness may be a mere vague feeling or it may take the form of worded inquiry, *i. e.*, the question. The rash, impulsive, foolish man is one who will not forecast the future in the light of past experiences, while the ignorant man is one who has not the past experiences which will enable him to judge of the outcome of the present situation. And so our different institutions of learning are trying to give its learners such accumulated bits of experience as will enable them to complete their new experiences in the best way.

Attention has long been held to be the proper state of mind for learning. In a broad sense it means concentration, and the problem of the schoolmaster has been how to secure this. If we are agreed that the proper completion of new, partly experienced facts, or the securing of the proper reaction to each stimulus, has been the essential factor in survival, it would seem that the inherited tendency to complete experience successfully would be very strong indeed and that the task of the teacher would be to restrain rather than to urge on. But it may be true, as Havelock Ellis says, that after four years we become biologically senescent, and so begin to be satisfied too easily with using the old acquired reactions and must be forced occasionally, even at that age, to learn new methods of reaction. Certain it is that there seems to be a wonderful spontaneity about the very young child in his efforts to learn which we miss later, for he is incessantly tasting everything, asking questions, handling objects, and trying every new stimulus.

It may be true, however, that the young child has not had his questions answered nor been allowed by "original research" to satisfy himself, and that in the schoolroom he is not allowed to choose appropriate reaction for his new experiences; he may have learned that there is no hope of adequately completing his experience under adult supervision at home or in the schoolroom, and so he ceases to care or try beyond what he must. Hence when a new fact is thrust upon him he accepts it as complete so far as he is concerned, and naturally lets go of it as soon as circumstances will allow. On the other hand, if the boy hopes to be able to complete his experience in a manner which suits him, he hangs on. He is willing to bend all his energies toward accomplishing it, and he is attentive or interested. A bright boy or girl who is condemned to a dull routine of practically the same thoughts and actions is naturally not very inquiring, and hence learns little. But even the dullest child becomes interested if he once recognizes the incom-

pleteness of his present experience and sees the possibility of a satisfactory completion, and for the child this must be motor to be most satisfying. It is nature's way; and the hardest lesson to be learned is this of directing the nervous energy through other channels.

My general theory of bringing up children is this: Find out what they want to do, and help them do it. And it works; in fact, I have discovered by experience that it works embarrassingly well unless one has suitable environments and a great deal of time and energy; but if this theory were carried out consistently and wisely it would do more to revolutionize our present mode of nervous urban life, to say nothing of the benefit to the individual child, than any amount of preaching. A similar statement embodies my general theory of teaching: Find out what the child wants to know, and help him learn it. Listen carefully to the questions of children and conscientiously answer them, is the practical conclusion in regard to teaching after years of painstaking study of psychology, logic, pedagogy, and other kindred subjects. And it is no small task to answer children's questions. Nowhere else do we hand out stones and scorpions so often when bread and meat are begged for.

Of course the question has played a tremendously important part in teaching so far back as the memory of man reaches and the teacher has been the questioner. But why should he be? He is not the one who wants to learn, and too often the questions are nothing more than mere tests, superficial inquiries directed toward the pupil to find out what he knows. True, the good teacher has tried to formulate questions with a view to awakening the attitude of inquiry in the child's mind, but it is a poor substitute for the spontaneous, unrestrained inquiry of a child who is trying to adjust his new and old experiences and who is constantly seeking a new and broader environment to fill the aching void. The function of the teacher is to lead to "pastures new" in books, in nature, in passing events, and in laboratories. The finding of facts, rules, and principles being the objective point of this process, memorizing them ought to come easily to the child, and, of course, the retention of what is discovered is a necessary part of learning.

This sort of learning is much more than association; it is reasoning, according to Ribot,[2] who says that to simple association expectancy must be added before reasoning takes place, and that the question is a state of expectation equivalent to a conclusion in the empirical order. It is the effort of consciousness to unburden itself of the multiplicity and complexity of details and to find that sim-

[2] "Evolution of General Ideas," p. 25.

plicity which is great enough to compensate for the richness and variety it is losing, and this greatness consists in the fact that it is a general statement or law applying to new particulars and subserving some practical purpose.

At the risk of repetition, but for the advantage of greater clearness and emphasis, it seems best to give briefly in substance some of the statements of Mach on the origin of the problem which in a broad way applies to all inquiry. What state of mind leads to this awareness of the incompleteness of our experience? He says that it is most frequently brought about by the introduction of something new into experience. Those who follow a routine, practical life seldom are troubled with problems, but if their circle of experience is widened by something new to which they can not immediately adapt their thoughts, queries necessarily arise. He reminds us that the history of science especially teaches us that when the new, hitherto unknown facts of one generation clash with the older ideas of a former generation, the most new problems have arisen. Unless there is an incomplete statement or a problem already in the mind which a new fact or relation exactly completes, the result is a state of confusion which Mach describes as the state in which the problem is born. "If the results of the psychical partial adaptations fall into such contradiction that thoughts are driven now in one, now in another direction, if the unrest increases to such an extent that consciously and purposely a unifying thread is sought in this confusion, then a problem has arisen."[3] The presence of something new will not bring about confusion where there is not even partial adaptation. For example, the child will not care for the discovery of a new planet, while the announcement of the discovery of a new kitten will arouse him to the greatest activity, and he instantly asks, "Where is it?" "May I have it?" "Where did it come from?" "May I play with it?" etc.

Introspection will doubtless verify this theory in the case of all adults who submit themselves to the test, and it is no less true in the case of children, so far at least as my observation goes. One object of education is to shorten the state of confusion and eliminate it by practise or habit where it is possible, *i. e.*, where a satisfactory adjustment or adaptation has been made in the best possible way by the directed effort of the individual himself. As Ribot says:[4] "In short, we learn to understand a concept as we learn to walk, dance, fence, or play a musical instrument: it is a habit, *i. e.*, an organized memory." "General ideas are habits in the intellectual order." Having accomplished this sort of learning successfully will not lead to a petrified sort of life, as Rosseau feared, but will

[3] *Op. cit.*, pp. 251 ff.
[4] *Op. cit.*, p. 131.

give the individual the courage and the training and power to attempt new adjustments whenever the necessity or opportunity arises. The trained adult can master a slightly new situation or idea with surprising readiness, but for the child the process of learning is from confusion to clearness with many gradations. The first step toward clearness which a teacher can discern is the question, and the last is the answer, which should come from the child, if possible, as truly as the question.

Instead of the words "confusion" and "clearness," Ribot[5] uses the terms "indefinite" and "definite" when discussing the theory of generals and particulars. He says: "Its capital error is in applying to the embryonic state of intelligence and of language formulæ that are appropriate to adult life only, to the growing mind, categories valid for the formed intellect alone. . . . The sole permissible formula is this: Intelligence progresses from the indefinite to the definite. If definite is taken as synonymous with general, it may be said that the particular does not appear at the outset; but neither does the general in any exact sense; the vague would be more appropriate."

The part that a teacher must play is that of causing disagreement between ideas, or ideas and things, sufficiently strong to put the child to working out the solution, and to guard against false agreements. As Mach says, when the disagreement is once clearly recognized, the problem stated, then it follows naturally that the next thing to be done is to seek the solution. This is the peculiarity of Socrates's method, who delighted to bring his hearer to such confusion that he could himself see that his own ideas did not agree nor could be acted on in a practical way. Not that one should adopt Socrates's good-natured sarcasm, in the case of children at least. In fact, the problems of just how far one is to arouse the contradictions and how much help the child is to receive at every step are to be worked out according to the subject-matter, the age and capability of the child, etc., and belong more to the art of teaching than to psychology. For example, I encourage a class in ethics to puzzle and work for weeks over some great principle rather than explain it to satisfy their curiosity before they have done their best. In the case of little people learning the multiplication table, after they have once learned the principle of multiplying, I advise teachers to use rapid drill, which the children enjoy if not too prolonged, and which is indispensable to skill in the use of numbers.

Wherever for some reason the child has not this awareness of incompleteness in regard to desirable objects, it does belong to psychology to suggest two very general rules for causing the desired

[5] *Op. cit.*, p. 32.

awareness of incompleteness, the first of which is involved in the first quotation from Mach and is this: Begin with phenomena, observable facts, and then introduce the ideational elements not to be supplied by observation. The second is: Select those experiences to render incomplete which from their standing in the consciousness of the child will call for great, though not the maximum, effort in order to secure completion. For, as Ward suggests, "Objects of experience are not primarily objects of knowledge, but objects of conation, *i. e.*, appetite and aversion," something on which to react, which call forth an attempt to nourish or to destroy.

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REVIEWS AND ABSTRACTS OF LITERATURE

Kants Methodologie in ihren Grundzügen: Eine Erkenntnistheoretische Untersuchung. OSKAR EWALD. Berlin: Ernst Hoffman & Co. 1906. Pp. iv + 119.

The object of this inquiry is stated to be the determination of the historical question whether "psychologism" or "transcendentalism" is the foundation of the Kantian theory of knowledge, and, thus, to lead to a general consideration of the relations of these two standpoints in philosophy to-day. After a preliminary sketch of the differences between ancient and modern methodology, with especial reference to the great influence that psychology exercises on contemporary philosophy, Dr. Ewald outlines his procedure. The basic difference between psychologism and transcendentalism is that, according to the former, all categories and principles of thinking are contents of consciousness or facts of intuition, whereas, according to the latter, categories are simply cognitive functions or conceptual values that can not be envisaged in the stream of consciousness. But there is, he says, a further distinction, not generally recognized, between *immanent* and *transcendental* or *metaphysical* psychologism; the former proposes to stick to inner phenomena, and is psychology without the soul; the latter transcends phenomena and assumes a metaphysical reality. The difference between transcendental psychologism and the transcendentalism of pure logic is that, whereas the latter regards the categories simply as an intellectual system of relations, an inventory of pure logical values without psychical existence, the former treats them as metaphysical psychical functions.

Dr. Ewald proceeds to a careful examination of the question whether immanent psychologism is legitimated by Kant. He conducts this examination under the four categories of quantity, quality, relation, and modality. Quantitatively, immanent psychologism asserts that *all* phenomena are inner psychical phenomena and finds in Kant's doctrine of time, as the form of all intuition, its support. But this doctrine must not be so interpreted. Kant is not dealing with psychical phenomena at all, but with the *a priori* conditions of knowledge. Qualitatively, the

argument is that the inner world is known directly, the outer world indirectly, and so the psychological becomes the universal method. Inner regularity is immediately perceived. The unity of apperception is a direct intuition. Against this interpretation Dr. Ewald maintains that Kant regarded our own soul life as phenomenal in the same sense that outer objects are phenomenal. For him the soul, the world, and God are not objects, but *functions*. Kant holds that there is no intuitive psychology. Consequently whereas, for Wundt, for example, the synthetic unity of apperception is immediately grasped, for Kant it is simply a thought construction or concept. Knowledge of the psychical is on the same basis as that of the physical. The regularity that may be found in inner phenomena is an ideal, not an intuited fact; and this ideal, if perceived, ceases to be an ideal. In terms of relation, psychical phenomena are held to be immediately present to consciousness, physical phenomena mediately. Wundt, in particular, represents this view. It was not Kant's view. In terms of modality, psychologism holds that the evidence for the psychical is greater than that for the physical. The psychical is fact, the physical inference. This view, again, is not deducible from Kant's doctrines, for it is essentially an appeal to a sensualistic principle of knowledge; whereas Kant grounds science on the necessary character of its concepts. Dr. Ewald sums up this part of his discussion by saying that psychologism tries to resolve logical categories into intuitions, whereas the unity of the world and that of self are both purely conceptual.

In briefer space Dr. Ewald considers, under the same categories, Kant's relation to transcendental psychologism. This is, in short, the theory that the synthetic activity of apperception, with the several categories, are functions of a transcendental subject. The creative principle of synthesis is never content of actual experience, but is, nevertheless, more than a unity of logical values. Dr. Ewald considers that the deduction of the categories in the first edition is strongly colored with this view, whereas in the second edition the deduction is more rigorously in terms of logical values. Transcendental psychology is involved in the philosophy of identity. Fichte, Schelling, Hegel, and Schopenhauer all represent it with differences of emphasis. Von Hartmann's doctrine of the unconscious, which is superconscious, is its logical outcome.

The transcendentalism of pure logic will eschew all metaphysical inquiries and restrict itself to a doctrine of logical values. It concerns itself only with the *meaning* of the categories, not with the question of their origin in terms of either an empirical or a transcendental psychology.

Dr. Ewald finds three methods of deduction of the categories in Kant. The first, which is prominent in the "Critique of Pure Reason," is the progressive or synthetic method, which to be carried out fully would involve the rigorous deduction of the whole system of first principles of knowledge from a single principle. This is the method of a transcendental psychology, since it requires the assumption of metaphysical principles. It can not be carried out. A second method appears in the treatment of the three stages of synthesis, especially in the first edition. Kant here seems to make his problem the deduction of perception. The

question seems to be as to the intellectual function of unity in perception, not as to the ideal unity of law in experience *überhaupt*. This method is not true to the spirit of Kant. The third method, which in Dr. Ewald's opinion is truest to the spirit of transcendentalism, is the *regressive* or *analytical* method, which he also calls the *teleological* method. Starting from experience or nature *überhaupt*, as involving both physical and psychical experience, it determines the logical postulates or values involved in the constitution of experience. From the ideal concept of nature it deduces the immanent conditions of nature as orderly experience; for example, in order that nature be possible there must be a strict law of *causality*, of *substantiality*, etc. This method leaves open the question of a transcendent unity of consciousness. It is metaphysically neutral.

The argument of the work is condensed, the style at times elliptical, and the discussion frequently hard to follow. Dr. Ewald disclaims making a contribution to "Kant philology," nevertheless the historical phase of his argument world have profited by fuller citation and reference. The arrangement of the discussions under Kant's four main categories seems somewhat forced. The work is very acute and well worth the pains spent on it. In my judgment, Dr. Ewald has shown conclusively that immanent psychologism has no legitimate foundation in Kant's theory of knowledge. The characterization of the distinction between a transcendental psychology, for which the synthetic unity of consciousness is a hyperempirical reality, and the immanent analysis, by pure logic, of the conceptual values involved in experience, if not new, is given fresh and instructive expression. I doubt, however, whether Kant would have admitted the finality of the distinction, and I question whether the so-called pure logic of experience can really be worked out to a theory of knowledge without being driven to the assumption of a metaphysical principle of synthesis. While it is undoubtedly true that a logic and theory of knowledge can not be based on a structural analysis of empirical psychical content, in short, on a psychology that sticks to a pure phenomenalism, it seems to me that a functional analysis of the thinking process is at once the meeting point of psychology and logic and the starting point for a metaphysics of cognition.

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Immediacy, Mediacy, and Coherence. G. F. STOUT. *Mind*, January, 1908. Pp. 20–47.

This very timely contribution to current discussion of the epistemological theme is written primarily with the purpose of taking issue with certain positions maintained in the recent book of Mr. Joachim, "The Nature of Truth." Mr. Joachim and those who share his views maintain, it is here stated, that the ultimate test of truth is systematic coherence of judgments; empirical data have a negligible function, if they have any. "In the first place it is urged that the immediate ceases to be immediate in becoming mediated. The gradual attainment of truth is also the

gradual dissolution of the relative independence and immediacy of what we call *data*. There would be *no data* for an omniscient mind." This emphasis upon mediation as the source of truth is connected with the doctrine that the degree of truth is proportional to the degree of mediation, and that only that judgment could be true which affirmed complete mediation.

This thoroughgoing distinction between mediate and immediate knowing seems to Mr. Stout to be of vital importance to the theory of knowledge. He rejects summarily at the outset the interpretation of this distinction which points to knowledge not of things, but of phenomenal appearance, of something whose being is "being for thought." The *crux* of the problem is in the theory of universals, and conceptualism is at the root of the whole difficulty. "The class universal is not a 'horse in general,' but what we call the 'nature of horses'; and this is just as essentially an aspect of reality as the particular existence of this or that horse." And the same is true of possibilities, or of what is really meant by the candid use of that word. "Given a general nature, we find it intrinsically *capable* of being exemplified in certain ways, independently of its being *actually* exemplified in these ways." That is the kind of thing it is. Glass is brittle, though it may not get broken. "Gold is malleable, soluble in *aqua regia*, of a certain specific gravity, etc. All these adjectives express ways in which things behave or would behave *if* certain conditions are or were fulfilled." In this way, then, universals and possibilities are not things that have merely "being for thought." "The knowing mind as such is in immediate relation not to a 'content' having being only 'for thought,' but to an object having a being and nature of its own." Accordingly no knowledge is mediated by contents which have "being only for thought." In this sense of mediacy, all knowledge is immediate.

In another and more reasonable sense, however, mediation is an important factor in knowledge. "If I grasp a man's hand in the dark, the presence of an arm and body continuous with the hand is cognized mediately. . . . Thus a cognition is mediate in this sense in so far as it comes to us through inference or in some way logically analogous to inference." But in this sense not all cognition can be mediate. Two sorts of immediate elements in knowledge are obvious—the kind characteristic of self-evident propositions, and the immediacy of feeling, what makes the difference between feeling a toothache and knowing that some one else feels it. The thing, however, which has the quality of immediacy is more than an immediate presence; if it is identified at all, if it presents an instance of cognitive experience, it is mediated by our previous experience and knowledge of similar things. As cognized it belongs to a context whence it derives its character as an object of thought. But the context could have no application or relevance except in so far as the immediate experience is provided and calls for interpretation. And it describes the facts better to say that the context is absorbed by the immediacy rather than that the immediacy is absorbed by the context. The experience is of a determinate this, which exemplifies its context.

In one sense, then, immediacy is a test of truth, but it is not one which affords a test that can be used "in the progressive development of knowledge." "It does nothing for the gradual displacement of mere belief by knowledge in the strict sense of the term," because such knowledge has to do with relations of systematic coherence. Accordingly, "the test of truth which is really operative in the development of knowledge includes an appeal to coherence as well as an appeal to immediacy." But both coherence and immediacy must be tested in testing for truth. The emphasis on coherence is an insistence on "the principle that the universe contains no *loose* elements." Yet, "if a system of cognitions has no guarantee, but mere internal coherence, it is a 'castle in the air.'"

Mr. Stout will not admit that the difference between his view and that of the thoroughgoing advocates of coherence is merely a difference of emphasis. "They do mean to deny that the factual immediacy fulfills the function which I assign to it. The denial of this belongs to the essence of their contention." As opposed to them, Mr. Stout contends that "immediate knowledge does not become less immediate by being mediated," and he explains the opposite opinion, held by thinkers of the type of Mr. Bradley, by a failure on their part to distinguish between the immediate judgment and "what they call the *isolated* judgment." The immediate judgment is not indifferent to context, although the latter remains implicit and inarticulate. "Whoever affirms anything affirms all its conditions; in so far as he knows them and has them present to his mind at the moment, he affirms them explicitly. In so far as he does not know or is at the moment oblivious of them, he affirms them implicitly."

"If this be so, it would seem that the judgments of finite minds are not necessarily false merely because they have an 'inarticulate background' or because they would be transformed for perfect knowledge."

The impression of the reviewer is that in this resort to the conception of an "implicit" background Mr. Stout has perhaps made larger concessions than he intended to make, concessions with which Mr. Bradley and Mr. Joachim might be abundantly satisfied. Mr. Stout accepts too readily the presuppositions of those he wishes to criticize, and upon the assumption that the character of knowledge may be determined by the assumed fact that objects of knowledge are details in a systematically interrelated and bounded universe no very successful difference of opinion may be possible. It is not clear that Professor Stout makes this assumption, but his opponents unquestionably do, and Professor Stout might have taken clear issue on this point with great advantage to his own position. For what is "implicitly" affirmed need not be the coherence of an entire cosmic system, but whatever coherence is subsequently made out. What assumption about the nature of knowledge could more effectually predetermine philosophical questions than this one of the "universe"? And is it a conception which the inquirer and searcher along the paths of science can not get along without, or is it a "fundamental" concept of a certain type of metaphysician? Professor Stout's article is admirably candid and discriminating, and the present reviewer may do it

injustice in feeling that the writer discusses the nature of knowledge rather with reference to the reverberations of a metaphysical tradition than to its empirical actuality and progress in humbler fields.

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JOURNALS AND NEW BOOKS

ANNALEN DER NATURPHILOSOPHIE. December, 1907, Bd. VI., Hefte 3 u. 4. *Psychographische Studien. I. Humphry Davy* (pp. 257–295: W. OSTWALD. – Davy belongs to the romantic rather than the classical type of investigator, in view of the rapidity of his mental activity; from this characteristic follow many others which make him a good example of that type. *Die Realität der sinnlichen Erscheinungen* (pp. 295–365): M. FRISCHEISEN-KOHLER. – In maintaining that the objective reality of qualities stands on the same basis as that of things, attention is particularly directed to weaknesses in the doctrine of specific energies, as usually formulated. *Die kollektiven Formen der Energie* (pp. 366–373): G. HELM. – *Zur Wissenschaftlichen Grenzbereinigung* (pp. 373–376): T. HAGER. – *Die Zyklischen Kausalreihen* (pp. 377–381): W. M. FRANKL. – *Die allgemeinen kausalen Grenzwerte* (pp. 381–384): W. M. FRANKL. – Of these four short articles each contains several points of interest. *Zur Kritik der Künstlichen Weltsprachen* (pp. 385–434): J. B. DE COURTENAY. – A defense of Esperanto against Leskien's attack, in which forty points are made. Finality, however, is disclaimed. *Zuordnung und Kausalität* (pp. 434–443): P. HAUSMEISTER. – *Kausalgesetz und Erfahrung* (pp. 443–451): P. FRANK. – *Die Kultur Bewegung* (pp. 451–459): W. FULDA. – *Das Kausalgesetz* (pp. 459–476): A. v. OETTINGEN. – Causation is diminishing energy and a differential process; effect is energy coming into play, and is a process of integration. A force should not be regarded as a cause, but as a condition, being always "dead" force. *Neue Bücher* (pp. 476–492): W. O.: J. Bresler, *Religionshygiene.* L. Stein, *Die Anfänge der Menschlichen Kultur.* M. E. Solvay, *Principes d'orientation sociale.* F. Waxweiler, *Esquisse d'une sociologie.* A. Mayer, *Los vom Materialismus.* W. T. Mann, *Christentum und Haeckeltum.* J. Baumann, *Für freie Universitäten neben den Staatsuniversitäten. Inhalt.*

ARCHIV FÜR GESCHICHTE DER PHILOSOPHIE. January, 1908, Bd. XXI., Heft 2. *Leibnizens Lehre von der Körperwelt als Kernpunkt des Systems: Fortsetzung* (pp. 145–165): M. LEOPOLD. Through the concept of development and the distinctions between phenomena well and ill founded, and between active and passive forces, Leibniz is able to subordinate mechanical cause to purpose, and the physical to the spiritual, without reducing the former to a mere symbol or illusion. *Die Staatslehre des Mariana* (pp. 166–196): B. ANTONIADES. – The Spanish Jesuit, Mariana (1600), differed from Hobbes in recognizing

the influence of family life, of speech, and of man's feeble body, in regarding the condition of war not as the original, but as a transitional condition, and in adding to the essential functions of a state the realization of the virtues of truth and kindliness. He requires a dual sovereignty, spiritual and temporal. *Beiträge zur Kantkritik* (pp. 196–217): E. SCHWARTZ. – Kant's uncritical admission of an epistemological absolutism, on which his argument is based, can never again be adopted. *Die Religionsphilosophie Teichmullers* (pp. 218–239): D. A. MÜLLER. – The religious life does not participate in historical development, but reveals always the same types, of which three were distinguished by Teichmuller, with subordinate varieties. ΠΥΘΑΓΟΡΑΣ (pp. 240–252): W. SCHULZ. – Pythagoras ingeniously crystalized his teaching by giving to the letters of his name numerical values, which in various combinations suggested at once his doctrines and the sacred character of his name. *Jahresbericht. Bericht über die deutsche Literatur der Letzten Jahre zur vorkantischen deutschen Philosophie des 18. Jahrhunderts* (pp. 255–284): T. ELSENHAUS. – An examination of six works on Leibniz, four on Lessing, and three on Herder, which have appeared since 1899, for the most part. *Berichtigung. Die neuesten Erscheinungen. Historische Abhandlungen in den Zeitschriften.*

Bruce, H. Addington. *The Riddle of Personality.* New York: Moffat, Yard & Co. 1908. Pp. viii + 247. $1.50 *net.*

Bruno, Giordano. *Opere italiane. II. Dialoghi morali.* Con note di Giovanni Gentile. Bari: Guis. Laterza & Figli. 1908. Pp. xviii + 512. 7 l.

Calkins, Mary Whiton. *The Persistent Problems of Philosophy.* Second revised edition. New York: The Macmillan Co; London: Macmillan & Co. Pp. xxiv + 575. $2.50 *net.*

Essays Philosophical and Psychological. In honor of William James, professor in Harvard University, by his colleagues at Columbia University. New York: Longmans, Green & Co. 1908. Pp. viii + 610. $3.00 *net.*

Ossip-Lourié. *Croyance religieuse et croyance intellectuelle.* Paris: Felix Alcan. 1908. Pp. 32. 2.50 fr.

NOTES AND NEWS

TO THE EDITORS OF THE JOURNAL OF PHILOSOPHY, PSYCHOLOGY AND SCIENTIFIC METHODS

GENTLEMEN: My review of Dr. Hyslop's volume in your pages has brought about a thirty-page rejoinder in the *Journal of the American Society for Psychical Research.* I can not readily convince myself that two persons holding such differently angled views of the cosmos, of science, and of evidence are likely to be drawn to a common point of regard by much argument. Yet a thirty-line statement seems desirable.

Dr. Hyslop's wielding of the old-time charge of materialism seems futile. We differ as essentially as to what is implied in that term as in the meaning of such conceptions as the spiritualistic phase of life. But centrally as to the logic of evidence, the significance of science, the mission and interests of psychology, I can not but regard Dr. Hyslop's argument as evasive and confusing; and I am quite content to leave this difference to the judgment of trained and interested judges. The entire attitude (or may I say physiognomy?) of such books as Dr. Hyslop's seems to me unrelated to the procedure by which science expands, and seems affiliated to what is often termed a propagandum. For this reason, again, we must pursue our several ways.

When Dr. Hyslop undertakes to assimilate the logic of his position to the mode of reasoning by which argon was discovered, I renew my protest. Had some "psychical" physicist announced the discovery of "psychium" as alone sufficient to explain the moving of chairs apart from physical contact, the analogy might hold. I see no reason for burdening psychology rather than physics with a step-science that shall garner the mysterious phenomena, and leave the ordinary crop to the direct heir.

Lastly, as to facts. We differ as radically as to the mode in which facts appear in science, what they look like, and what they mean, as we do as to the emergence and value of hypotheses. The word "fact" as thus used lost its power to inspire terror in me long before I read the words of Dr. Holmes, which are quite too emphatic to be here cited—as, indeed, I have no temptation to cite them—but which set forth a very pertinent sentiment: To call such and such an alleged observation a "fact" is no more and no less an expression of bias than it is to maintain a fully developed and dogmatically fixed hypothesis. This is the fallacy so flagrantly and elaborately exemplified in the writings of M. Flammarion, who at the beginning of his investigations in "psychic" (s. v. v.) science assumes an attitude which he would most tentatively assume at the end of a laborious astronomical research. In many a field "facts" are but the external counterpart of the inner view. Naturally, differing as we do, Dr. Hyslop and I must differ much as to what we shall call a fact, and as to how we shall explain certain other facts which we both recognize.

Very truly yours,

JOSEPH JASTROW.

UNIVERSITY OF WISCONSIN,
March 20, 1908.

THE following summary of a paper by Dr. Shadworth Hodgson on "The Idea of Totality" read before the Aristotelian Society at its last meeting is from the *Athenæum:* "Philosophy is the attempt to frame a consistent system of knowledge based upon data which are immediate at once in consciousness taken subjectively as a knowing, and in that same consciousness taken objectively as an existent. The special difficulty of establishing a consensus of individuals in any such system is the difficulty of harmonizing the analyses of the immediate conscious-

ness of individuals taken as a knowing, when that same consciousness taken as an existent is incommunicable to other individuals. The distinction between percept and concept, and the nature of the relation between them, are a cardinal instance of this difficulty. And it is to this distinction and this relation that the interpretation of the idea of totality must be referred. Taken as a concept, totality implies finitude; conceiving is limiting, and a total is a finite whole. Taken as a percept, totality implies infinity; both in time and in space, as inseparable elements in experience, there is always a *beyond* to any content which we can specifically perceive or imagine: a *beyond* which, owing to the continuity of these elements, belongs to one and the same universe, and makes it in its totality an infinite whole. There is, therefore, a *beyond* to every conceptual or finite total. In trying to conceive the universe we can not but conceive it as an infinite percept. Two consequences follow. One is that we have to think of our universe as including innumerable kinds of specific feelings, of which, nevertheless, we can form literally no specific imagination, and also an indefinite number of formal elements analogous to those which we know as time duration and space extension, but the specific nature of which we are equally unable to imagine. The other is that, since the universe of our specific experience is known to us as infinite, we can frame no positive conception or theory explanatory either of its nature or its genesis. Infinity precludes explanation, because it implies the reality of something which no specific idea that we can frame is adequate to represent."

A COURSE of lectures on "Aspects of Evolution" has been in progress at the University of Minnesota under the auspices of the Philosophical Club. The program was as follows: February 27, Evolution in Chemistry, by Professor Frankforter; March 5, Evolution in Astronomy, by Professor Leavenworth; March 12, Evolution in Geology, by Professor Sardeson; March 19, Evolution in Biology, by Professor Clements; March 26, Evolution in Psychology, by Professor Miner; April 2, Evolution in Ethics, by Professor Wilde; April 9, Evolution in Philosophy, by Professor Swenson.

THE American Society for Psychical Research Section "B" has issued a circular of directions to those who are willing to aid the society in carrying on its work, and a circular containing a list of questions, with instructions for answering them. The circulars may be obtained from Dr. James H. Hyslop, 519 West 149th St., New York City, to whom all communications should be addressed.

THE Macmillan Company announces "The Elementary Psychology of Feeling and Attention," by Professor Edward Bradford Titchener, of Cornell University.

MR. A. O. LOVEJOY has been called to the professorship of philosophy in the University of Missouri, and will resign his position in Washington University, St. Louis, at the end of the current academic year.